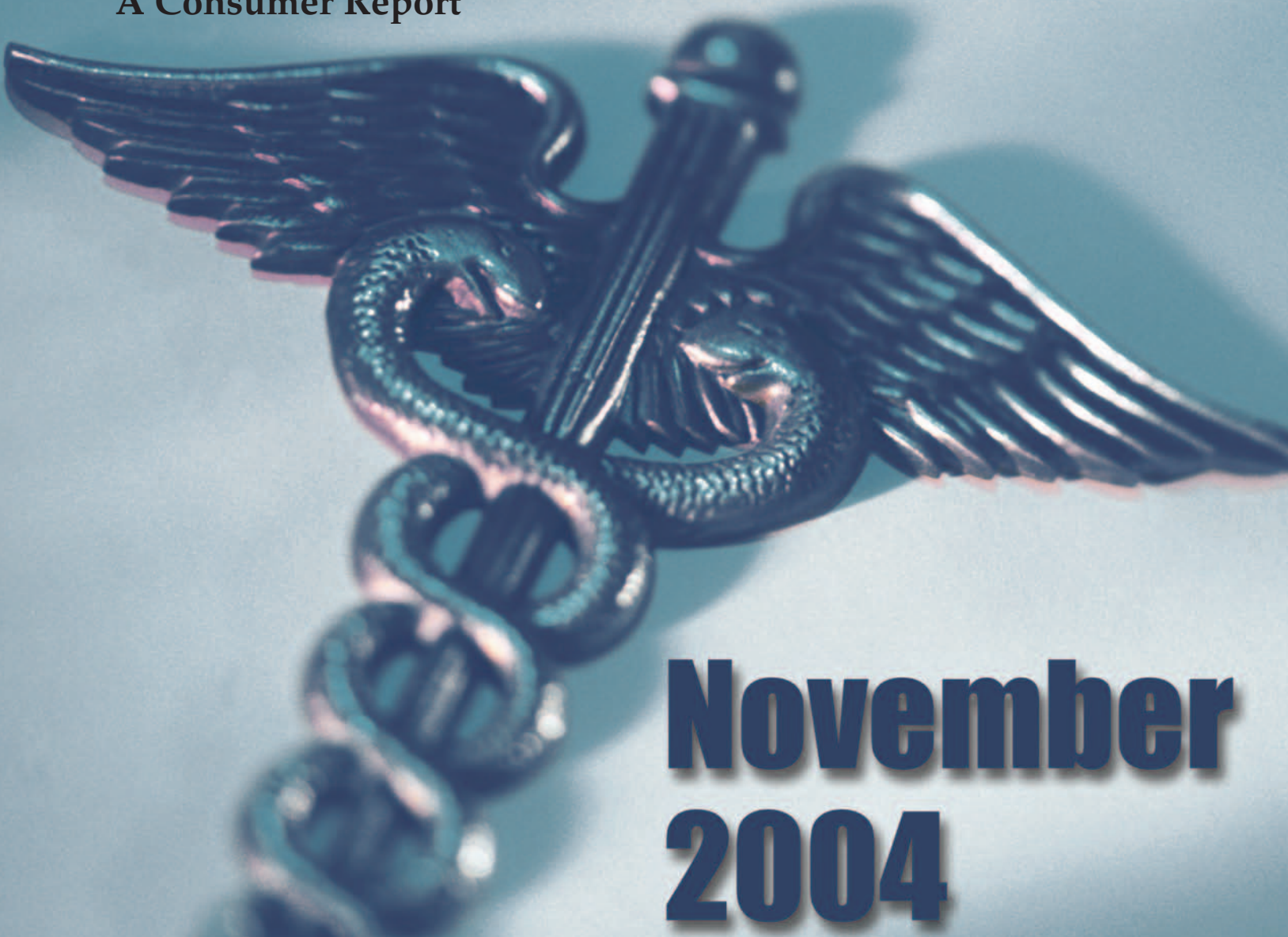


Cardiac Surgery in New Jersey 2001

A Consumer Report



November 2004



Richard J. Codey
Acting Governor



Clifton R. Lacy, M.D.
Commissioner



Message From The Commissioner

We are pleased to present Cardiac Surgery in New Jersey 2001, the state's sixth consumer report on coronary artery bypass graft surgery. This report summarizes the results of an analysis of mortality for patients of the New Jersey hospitals performing bypass surgery in 2001.

In facing bypass surgery, patients and their families have questions and concerns. We hope this guide answers many of those questions and helps patients discuss concerns and treatment options with their physicians.

The Department has worked closely with the Cardiovascular Health Advisory Panel (CHAP) to bring consumers and providers the best possible data on cardiac bypass surgery outcomes. This report also provides information on the total number of cardiac surgeries physicians perform, including but not limited to bypass surgeries. The data for 2001 continues the trend of steady reduction in cardiac surgery mortality in New Jersey. I would like to thank the CHAP members for their important efforts to support quality improvement in cardiac services in New Jersey.

Clifton R. Lacy, M.D.
Commissioner

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Executive summary

The Department of Health and Senior Services collected data in 2001 from the 16 hospitals covered in this report on 11,510 open-heart surgery patients. Of these patients, 8,045 had coronary artery bypass graft (CABG) surgery with no other major surgery during the same admission.

The primary goal of this report is to provide New Jersey hospitals and surgeons with data they can use in assessing quality of care related to bypass surgery. More importantly, this report presents patients and families of patients with important information they can use in discussing questions and issues related to bypass surgery with their physicians.

After subjecting the CABG surgery data to extensive error checks and consulting with an expert clinical panel, the isolated CABG surgery data were analyzed using a statistical procedure to assess hospital and surgeon performance. The statistical analysis took into account the patient's health status before surgery as well as demographic factors. This process is commonly known as "risk-adjustment" and allows for fair comparisons among hospitals and surgeons treating diverse patient populations. Some key findings of the 2001 data analysis are as follows:

- In 2001, there were 11,510 total open heart surgeries performed in New Jersey by hospitals covered in this report of which 8,045 were isolated CABG surgeries.
- Of the 8,045 isolated CABG surgery patients, 202 died while in the hospital or within 30 days after surgery.
- The statewide observed operative mortality rate for isolated CABG surgery patients in 2001 was 2.51 percent. When comparing 2000 and 2001 on a risk-adjusted basis, there was a 10.3 percent reduction in mortality during the year. Although this decline was not statistically significant, it represents a substantial change over a one year period.
- Estimates derived from the 1994-2001 pooled data suggest that risk-adjusted patient mortality in New Jersey has declined by about 45 percent since 1994.
- Only one hospital (Our Lady of Lourdes) had a significantly higher mortality rate in 2001 than the state average. No hospital had a significantly lower rate.
- Two surgeons, Dr. David Johnson and Dr. Eric Somberg, had significantly lower risk-adjusted mortality rates.
- The odds of dying from an isolated CABG surgery increased with age, with older patients being at a higher risk than younger patients.
- Not surprisingly, sicker patients were at greater risk:
 - A diabetic isolated CABG surgery patient had an almost 50 percent greater chance of dying after surgery compared with a patient who had no diabetes.
 - A patient who was in cardiogenic shock was more than six times as likely to die after CABG surgery compared to a patient who was not in cardiogenic shock prior to surgery.
 - Arrhythmia, lung disease, renal failure and low ejection fraction are associated with higher CABG surgery mortality among New Jersey patients.

Introduction

This report is for patients and families of patients facing the possibility of coronary artery bypass graft (CABG) surgery. It provides mortality rates for the 16 hospitals and the physicians performing this common cardiac surgical procedure in 2001.

For this study, the Department of Health and Senior Services collected data on the 8,045 patients who had bypass surgery with no other major surgery during the same admission in 2001. This is the most recent year for which a complete, audited data set is available. All data have been “risk-adjusted,” which means that data were adjusted to take into account the patient’s health condition before surgery. This risk-adjustment allows for fair comparisons among hospitals and surgeons treating diverse patient populations.

An important goal of this analysis is to give hospitals data they can use in assessing quality of care related to bypass surgery. There is strong evidence, from the handful of states with similar reports, that this information encourages hospitals to examine their procedures and make changes that can improve quality of care and, ultimately, save lives.

In fact, New Jersey’s mortality rate for bypass surgery has shown a significant decline. For 2001, the statewide operative mortality rate following bypass surgery was 2.51 percent, representing an improvement of about 45 percent since 1994.

Another goal of the report is to give patients and physicians information to use in discussing questions and issues related to bypass surgery. Please remember that the numbers in this guide are just one factor to consider in deciding where to have cardiac surgery. You and your physician together can make the best choice after full consideration of your medical needs. Also note that hospital data in this guide are from 2001, while surgeon data refer to 2000 and 2001 combined. These data may not reflect the current performance of specific hospitals, which may have revamped their programs since then.

Readers who have followed the Department’s CABG surgery reports will observe that the

mortality rates reported in this report appear to be higher than previously reported. This is not really the case. Instead, starting with the 2000 CABG surgery report, the Department, in consultation with the Cardiovascular Health Advisory Panel (CHAP), changed its definition of mortality to reduce the possibility that hospital discharge policies could artificially lower CABG surgery mortality rates. The current definition is discussed in greater detail later in this report.

Heart disease and cardiac surgery in New Jersey

Heart disease is the single largest killer of Americans. About every 30 seconds, a person somewhere in this country will suffer a heart attack, and about once every minute, someone will die from one. In New Jersey, cardiovascular disease, including heart disease, is the leading cause of death, with heart disease alone accounting for 22,704 deaths in 2001.

The most common form of heart disease is coronary artery disease. It occurs when the coronary arteries, which carry blood to the heart muscle, become clogged or partially blocked by fatty deposits on the artery walls. This can lead to chest pain, or angina, which is a warning sign for a heart attack. A heart attack occurs when a coronary artery is totally blocked.

Treatment options

Treatment for coronary artery disease will vary for different patients. The choice of treatment depends on the nature and severity of the disease and other factors unique to each patient.

For some patients, lifestyle changes such as quitting smoking, eating a low-fat diet, and getting more exercise may be enough. Some patients require special medications. Others may need medical procedures such as angioplasty or coronary artery bypass graft surgery. Angioplasty reduces obstructions of fatty deposits in coronary arteries and has become an increasingly common treatment method. Bypass surgery uses an artery or vein taken from another part of the body to divert blood

around the clogged part of a patient's artery or arteries.

This report is about coronary artery bypass graft surgery. It describes the performance records of 16 hospitals in New Jersey that offered this type of surgery in 2001 and the surgeons who performed this operation at least 100 times between January 2000 and December 2001. The information in this report can help you in discussions with your doctor about bypass surgery.

Performance data

In 2001, there were 8,045 isolated bypass surgeries performed in New Jersey. In an isolated bypass surgery, no other major heart procedure is performed at the same time. The number of people who died during the hospitalization in which the operation was performed, or after discharge but within 30 days of the surgery, was 202, or 2.51 percent of those who underwent the surgery. This number (i.e. the number of isolated bypass surgery deaths) is used to calculate a mortality rate that is used as a performance measure.

Definition of operative mortality

Beginning with the 2000 report, the Department, after consulting with the CHAP, changed the way mortality is defined for the purposes of the Department's cardiac surgery performance report. Previously, the Department defined patient death for this report as in-hospital death before discharge from the hospital after isolated coronary artery bypass graft (CABG) surgery. As a result, patients who died after being discharged home or to post-acute care facilities were not counted for purposes of calculating CABG surgery mortality rates. This caused concerns about "gaming" of outcomes through discharge practices.

Therefore, beginning with the 2000 report, the Department includes in its definition of "operative mortality" deaths up to thirty days post surgery or deaths occurring during the hospital stay in which the surgery was performed, no matter how many days after the procedure. Deaths occurring within thirty days after surgery, but post-discharge, have been identified by matching patient records in the

Department's open heart data base against the state's official death records.

Applying the revised definition of mortality, the Department also recalculated the statewide CABG surgery mortality rates for the prior years, in order to analyze the trend over time. Operative mortality rate estimates by year are presented in Figure 4. (See also Appendix C for statewide operative mortality rate estimates for years 1994-2001.)

Risk-adjusted mortality

In evaluating the performance of hospitals and individual surgeons, it would be unfair to make comparisons only on the basis of how many patients died. The mortality risk for patients undergoing bypass surgery varies significantly with how healthy patients are prior to surgery. For instance, a 75-year-old woman who has diabetes and renal failure with dialysis would be at higher risk for this surgery than a 50-year-old non-smoking man who had no history of chronic disease.

In order to produce fair comparisons, the New Jersey Department of Health and Senior Services applied a methodology that estimates **risk-adjusted mortality rates**. The risk-adjusted mortality rate gives "extra credit" to hospitals and surgeons with sicker patient populations, in order not to disadvantage them in the performance comparisons.

Each hospital was required to submit data which contain a risk profile for each patient undergoing bypass surgery.

Key factors that are associated with a patient's chance of surviving the operation include:

- the patient's age;
- whether the patient has various diseases, such as diabetes or severe lung disease;
- whether the patient has co-morbid conditions, like:
 - renal failure that required dialysis;
 - vascular disease;
 - arrhythmia;
 - cardiogenic shock;
 - congestive heart failure within two weeks prior to the surgery;

- low ejection fraction (under 30%); and/or
- whether the patient had a previous open heart surgery

Weights were assigned for each key risk factor and calculations were performed for each hospital to produce **risk-adjusted mortality rates** as a fairer basis of comparison.

Performance reports lead to improvement

This performance report is for use not only by you and your doctors, but also by hospitals to improve the quality of their care and their patients' outcomes. As discussed earlier, the New Jersey statewide observed operative mortality rate for bypass surgery decreased by over six percent from 2000 to 2001. Evidence from other states that have published similar performance reports also shows that mortality rates have declined and the overall quality of bypass surgery care has improved substantially.

Hospitals

In 2001, sixteen hospitals in New Jersey were licensed to perform coronary artery bypass graft surgery. For the first time, Englewood Hospital and Medical Center, which was licensed in July 2000, is included in this report. Atlantic City Medical Center, which was licensed in August 2001, will be included in future reports, when a full calendar year of data is available to report.

This report provides risk-adjusted mortality rates for each of the sixteen hospitals. You will see that there are variations among the hospitals. Through statistical analysis, the Department is able to determine in which cases the variations reflect real differences in performance, and not different levels of risk among patients or random variation.

Nevertheless, these data should not be used as the sole factor in making choices about hospitals, but should be part of the discussion between you and your doctor.

Surgeons

A risk-adjusted mortality rate was also calculated for each of the 52 surgeons who performed at least 100 bypass operations in one hospital in the years 2000 and 2001 combined. Even after combining two years' worth of data, some surgeons' volume still falls short of the 100 cases considered the minimum required for the Department to have confidence in the results of the analysis. Statistics for these low-volume surgeons are grouped under the hospital where the operations took place, in a category called "**All Others.**" These surgeons are listed by name but with no risk adjusted mortality rates since their small numbers do not permit an accurate indication of their performance. Please note that this report does indicate the total number of open heart and CABG-only surgeries the low volume surgeons performed, as well as their number of isolated CABG surgery operative deaths.

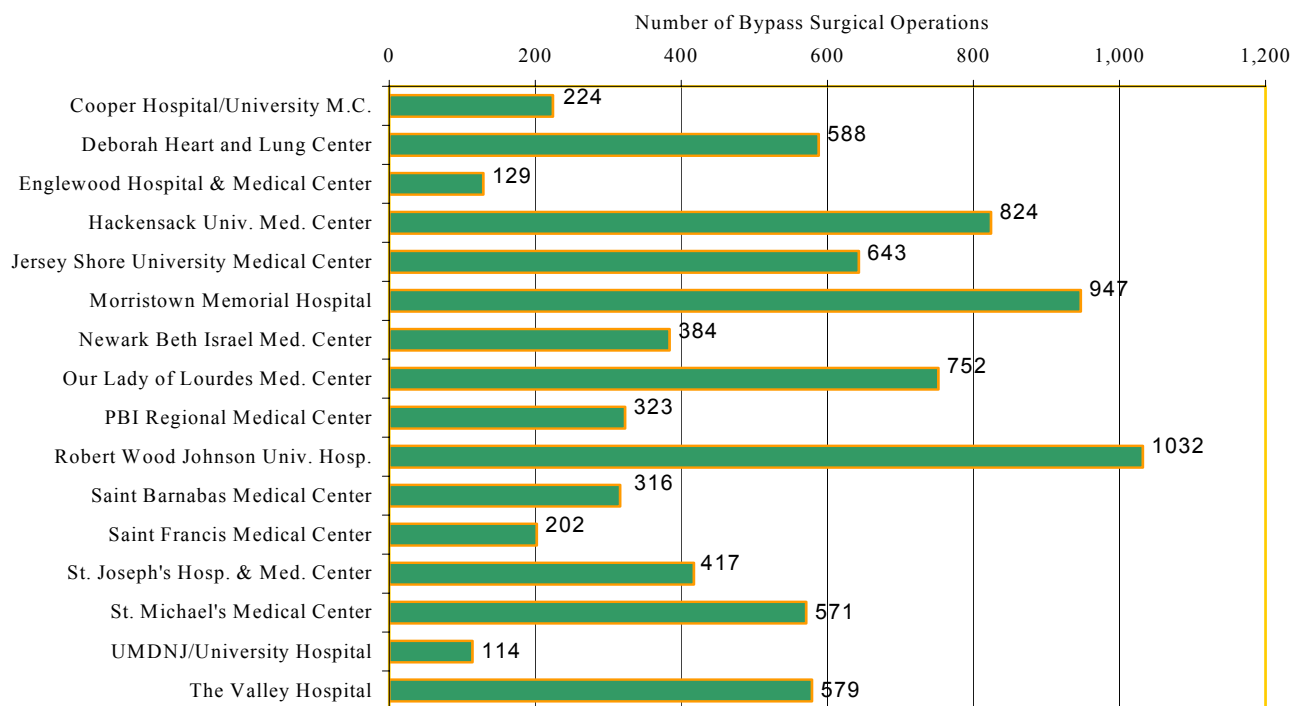
Volume affects quality

Many studies nationally and in other states have shown that, in general, hospitals and surgeons that perform bypass surgery more frequently have lower patient mortality rates. New Jersey's data also confirm this general trend. However, there are exceptions, and some hospitals and surgeons with low volumes can have good results.

Bypass surgery volume at New Jersey hospitals in 2001

Figure 1 shows the number of bypass operations performed in 2001 in each of the sixteen hospitals. You can see that some hospitals do more of these procedures than others, with totals ranging from a low of 114 to a high of 1,032.

Figure 1
Number of Isolated Coronary Artery Bypass Graft Surgeries (2001)



SOURCE: New Jersey Department of Health and Senior Services.

Statewide performance

In 2001, the observed operative mortality rate for the state was 2.51 percent, based on data on the 8,045 patients who underwent this surgery.

Hospital risk-adjusted mortality: 2001

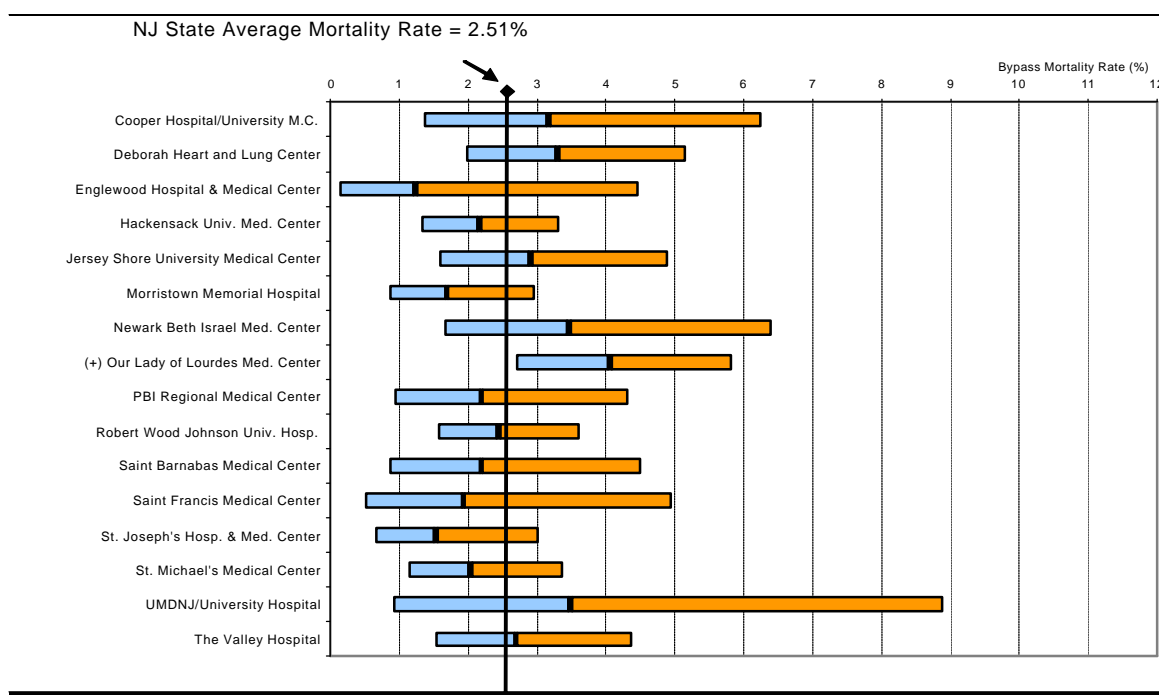
Figure 2 shows the risk-adjusted mortality rate for each New Jersey hospital performing bypass surgery in 2001. The risk-adjusted mortality rate takes into account the patients' risk factors going into surgery as well as the actual mortality rate after the surgery, in order to make a fair assessment of hospital performance.

The vertical line on Figure 2 represents New Jersey's statewide mortality rate of percent for 2001. Each hospital's performance is displayed graphically in relation to this statewide average.

Figure 2 shows one hospital - Our Lady of Lourdes Medical Center - with its bar completely to the right of the statewide average line. This means that the hospital had a risk-adjusted mortality rate significantly above the statewide average.

The remaining fifteen hospitals have bars that cross the average line. That means that their risk-adjusted mortality rates were not statistically different from the statewide average.

Figure 2
Hospital Risk-Adjusted Operative Mortality* Rate (2001)



SOURCE: New Jersey Department of Health and Senior Services.

* = Operative Mortality includes: (1) all deaths occurring during the hospitalization in which the operation was performed, even after 30 days; and (2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure.

+ = Risk-adjusted mortality rate statistically significantly higher than the New Jersey mortality rate based on 95 percent confidence interval.

Statistical significance

In trying to determine a hospital's or surgeon's performance, it is important to account for the fact that some differences occur simply due to chance or random variation. Statistical tests are conducted on the data so that we can be as certain as possible that the differences are due to actual differences in performance. A difference is called **"statistically significant"** when it is too large to be due to chance or random variation.

The dark line in the middle of each hospital's bar represents its risk-adjusted mortality rate. However, we cannot really be certain that this number is the precise rate. We can only be relatively sure that the true rate falls somewhere on the bar. In analyzing data, we use what is called a "95 percent confidence interval," and the bar represents the lower and upper limits of this confidence interval. We are 95 percent confident that the hospital's actual risk-adjusted mortality rate falls within the range shown by the bar. Another way of saying it is that the bar represents the statistical margin of error for the calculation of that rate.

When using this report, it is important to remember that the charts are designed to show whether a hospital's or surgeon's risk-adjusted mortality rate is significantly above or below the statewide rate, or whether a rate is statistically the same as the statewide rate. Thus, it is more important to view the bars in relation to the average line than it is to examine the individual calculated rates on the bars. The chart should not be used to make hospital-to-hospital or surgeon-to-surgeon comparisons, only to compare hospitals and surgeons to the statewide rate.

In examining the charts, you will see that some bars are shorter than others. The bar is shorter for hospitals or surgeons performing more surgeries, and longer for those with lower volumes. This reflects the fact that larger numbers -- in this case, more surgeries -- increase the precision of a statistic.

Individual surgeon performance

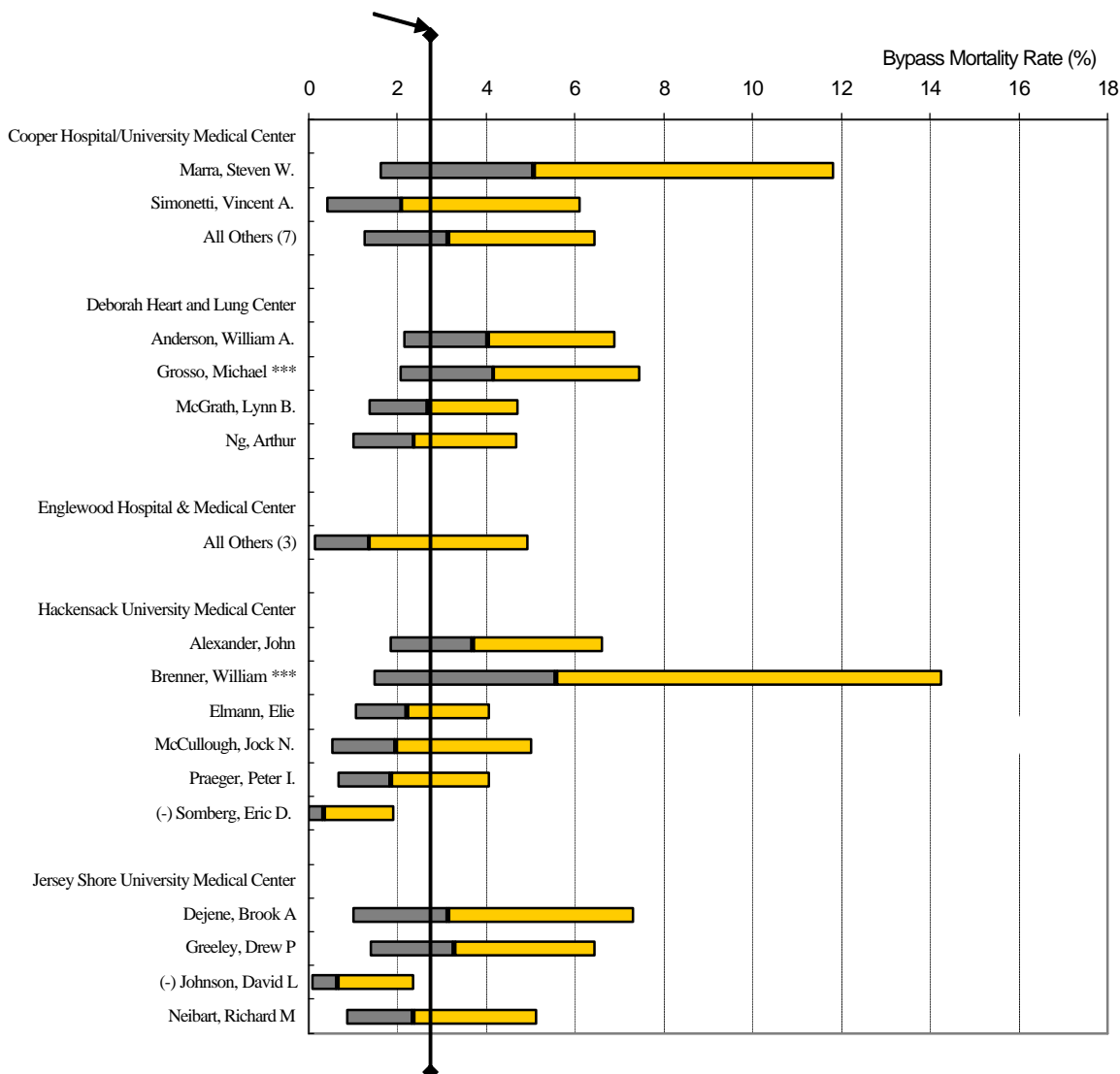
Figure 3 and Table 1 show the risk-adjusted mortality rate for each of the 52 surgeons who performed at least 100 isolated bypass surgery operations in one hospital in New Jersey in the years 2000 and 2001 combined.

Figure 3 expands on Figure 2, listing surgeons by name under the hospital at which they practice. Following the named surgeons, some hospitals have an **"All Others"** category which consists of all surgeons not performing enough procedures for an individual risk-adjusted mortality rate to be developed.

Once again, the vertical line on Figure 3 represents the statewide mortality rate. If a surgeon has a bar completely to the left of the statewide average line, it means that the surgeon's mortality rate was significantly lower than the statewide average. In 2000-2001, two surgeons have a bar completely to the left of the line. If a surgeon has a bar completely to the right of the statewide average line, it means that the surgeon's mortality rate was significantly higher than the statewide average. No single surgeon fell in this category.

Figure 3
Surgeon Risk-Adjusted Operative Mortality* Rate (2000-2001)

NJ State Average Mortality Rate = 2.59 for 2000-2001



SOURCE: New Jersey Department of Health and Senior Services.

* = Operative Mortality includes: (1) all deaths occurring during the hospitalization in which the operation was performed, even after 30 days; and (2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure.

(-) = Risk-adjusted mortality rate significantly lower than the New Jersey mortality rate based on 95 percent confidence interval.

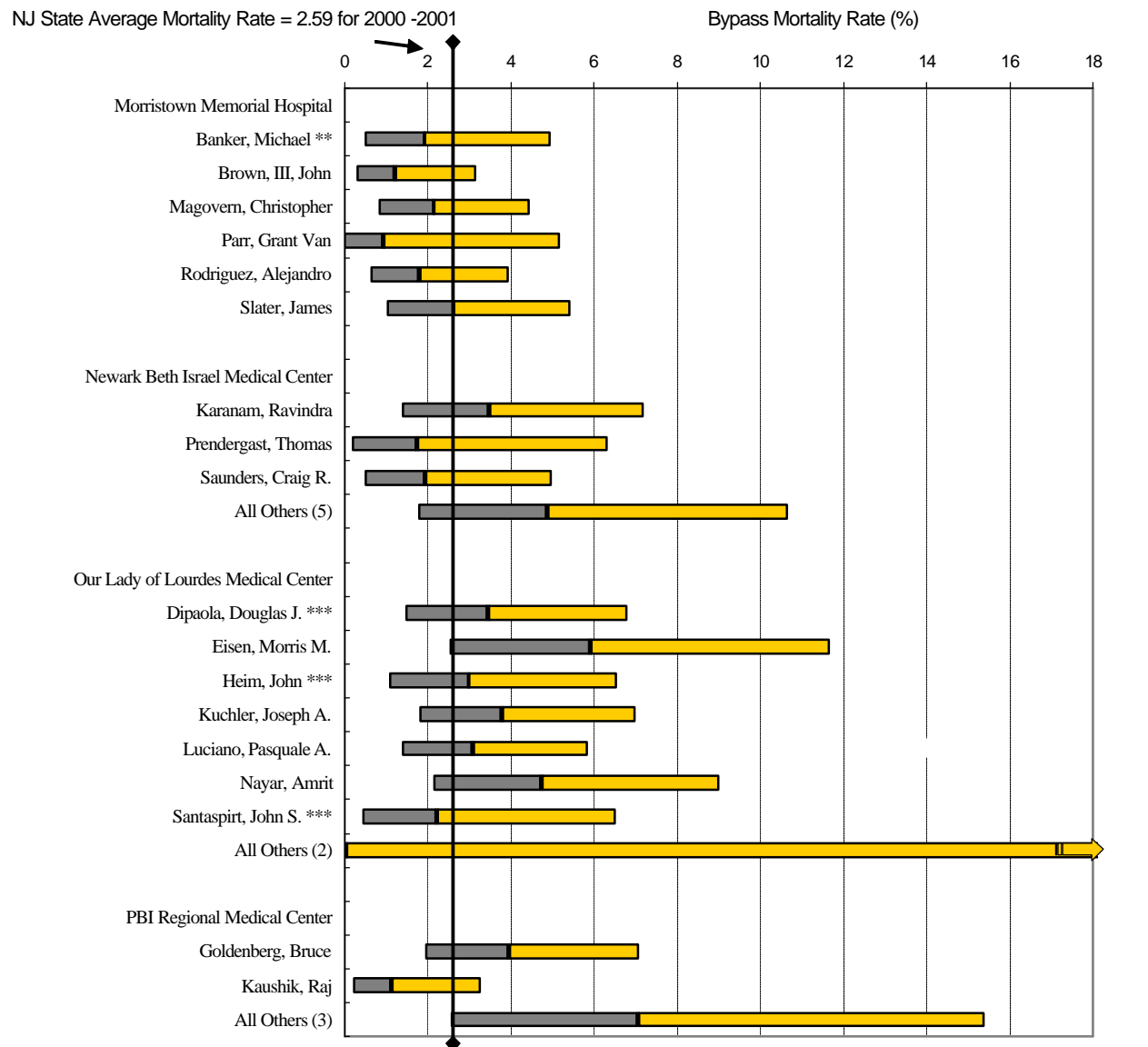
(+) = Risk-adjusted mortality rate significantly higher than the New Jersey mortality rate based on 95 percent confidence interval.

** = Surgeon not currently performing CABG surgery in this hospital.

*** = Surgeon not currently performing CABG surgery in New Jersey.

Figure 3 (continued)

Surgeon Risk-Adjusted Operative Mortality* Rate (2000-2001)



SOURCE: New Jersey Department of Health and Senior Services.

* = Operative Mortality includes: (1) all deaths occurring during the hospitalization in which the operation was performed, even after 30 days; and (2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure.

(-) = Risk-adjusted mortality rate significantly lower than the New Jersey mortality rate based on 95 percent confidence interval.

(+) = Risk-adjusted mortality rate significantly higher than the New Jersey mortality rate based on 95 percent confidence interval.

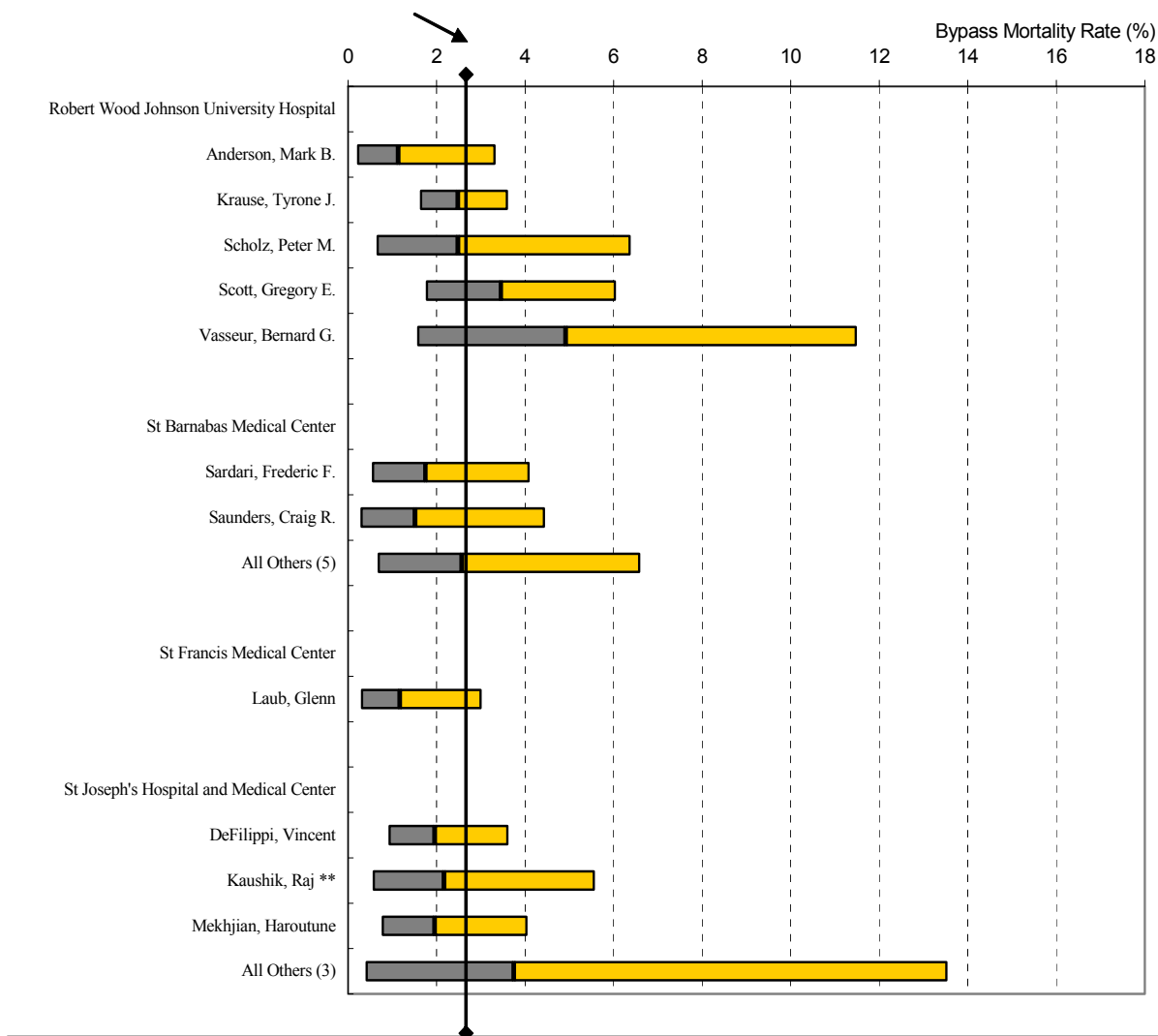
** = Surgeon not currently performing CABG surgery in this hospital.

*** = Surgeon not currently performing CABG surgery in New Jersey.

Figure 3 (continued)

Surgeon Risk-Adjusted Operative Mortality* Rate (2000-2001)

NJ State Average Mortality Rate = 2.59 for 2000-2001



SOURCE: New Jersey Department of Health and Senior Services.

* = Operative Mortality includes: (1) all deaths occurring during the hospitalization in which the operation was performed, even after 30 days; and (2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure.

(-) = Risk-adjusted mortality rate significantly lower than the New Jersey mortality rate based on 95 percent confidence interval.

(+) = Risk-adjusted mortality rate significantly higher than the New Jersey mortality rate based on 95 percent confidence interval.

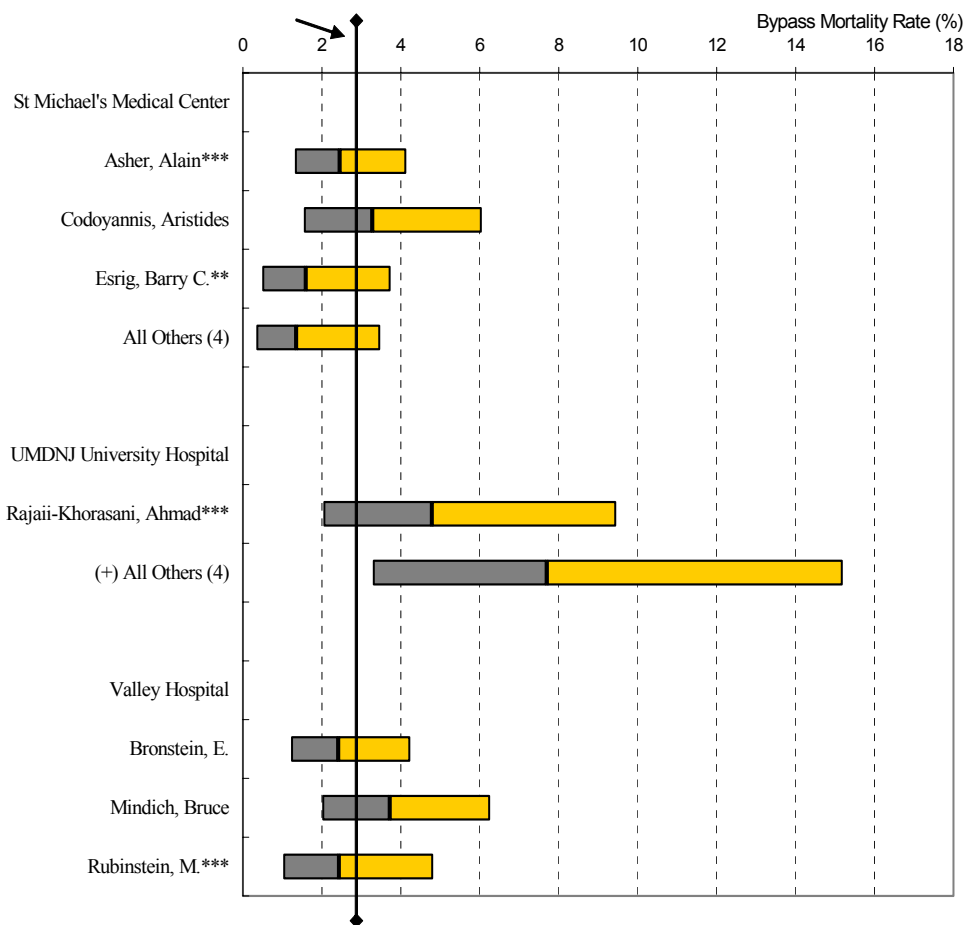
** = Surgeon not currently performing CABG surgery in this hospital.

*** = Surgeon not currently performing CABG surgery in New Jersey.

Figure 3 (continued)

Surgeon Risk-Adjusted Operative Mortality* Rate (2000-2001)

NJ State Average Mortality Rate = 2.59% for 2000-2001



SOURCE: New Jersey Department of Health and Senior Services.

* = Operative Mortality includes: (1) all deaths occurring during the hospitalization in which the operation was performed, even after 30 days; and (2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure.

(-) = Risk-adjusted mortality rate significantly lower than the New Jersey mortality rate based on 95 percent confidence interval.

(+) = Risk-adjusted mortality rate significantly higher than the New Jersey mortality rate based on 95 percent confidence interval.

** = Surgeon not currently performing CABG surgery in this hospital.

*** = Surgeon not currently performing CABG surgery in New Jersey.

Table 1
Patient Risk-Adjusted Operative Mortality* Rates for Surgeons (2000-2001)

Hospital and Surgeon	Total Open Heart Procedures	Number of Isolated CABG Operations	Patient Operative Deaths*	Observed Patient Mortality(%)	Expected Patient Mortality(%)	Risk-Adjusted Patient Mortality(%)	95% Confidence Interval
<i>Cooper Hospital/University Medical Center</i>							
Marra, Steven W.	143	107	5	4.67	2.40	5.06	(1.63, 11.81)
Simonetti, Vincent A.	184	140	3	2.14	2.66	2.09	(0.42, 6.10)
All Others (7)	341	196	7	3.57	2.97	3.13	(1.25, 6.44)
Antinori, Charles H.++	109	77	3				
Cilley, Jonathan H.	143	81	4				
DelRossi, Anthony J.	67	21	0				
DiPaola, Douglas J.++	1	1	0				
Heim, John++	3	2	0				
Lotano, Vincent	12	11	0				
Villanueva, Dioscoro++	6	3	0				
<i>Deborah Heart and Lung Center</i>							
Anderson, William A.	419	265	13	4.91	3.16	4.03	(2.14, 6.89)
Grosso, Michael++	376	204	11	5.39	3.36	4.17	(2.08, 7.45)
McGrath, Lynn B.	807	509	12	2.36	2.27	2.69	(1.39, 4.70)
Ng, Arthur	525	308	8	2.60	2.85	2.37	(1.02, 4.66)
<i>Englewood Hospital & Medical Center</i>							
All Others (3)	249	129	2	1.55	2.95	1.36	(0.15, 4.93)
Ergin, M. Arisan	118	48	1				
Klein, James	129	80	1				
Merav, Avraham++	2	1	0				
<i>Hackensack University Medical Center</i>							
Alexander, John	421	248	11	4.44	3.11	3.70	(1.84, 6.62)
Brenner, William++	154	100	4	4.00	1.87	5.56	(1.50, 14.23)
Elmann, Elie	366	256	10	3.91	4.58	2.21	(1.06, 4.07)
McCullough, Jock N.	258	198	4	2.02	2.67	1.96	(0.53, 5.02)
Praeger, Peter I.	501	383	6	1.57	2.18	1.86	(0.68, 4.05)
Sonberg, Eric D.	504	377	1	0.27	2.00	0.34 LO	(0.00, 1.91)
All Others (1)							
Asgarian, Kourosh	142	97	2				
<i>Jersey Shore University Medical Center</i>							
Dejene, Brook A.	242	200	5	2.50	2.07	3.13	(1.01, 7.31)
Greeley, Drew P.	433	325	8	2.46	1.95	3.27	(1.41, 6.44)
Johnson, David L.	470	364	2	0.55	2.18	0.65 LO	(0.07, 2.36)
Neibart, Richard M.	454	316	6	1.90	2.09	2.35	(0.86, 5.12)
All Others (1)							
Osevala, Mark A.++	52	39	0				

SOURCE: New Jersey Department of Health and Senior Services.

*= Operative Mortality includes: (1) all deaths occurring during the hospitalization in which the operation was performed, even after 30 days; and (2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure.

LO= The risk-adjusted patient mortality is significantly lower than the state average mortality based on 95 percent confidence interval.

HI = The risk-adjusted patient mortality is significantly higher than the state average mortality based on 95 percent confidence interval.

+ = Surgeon not currently performing CABG surgery in this hospital.

++= Surgeon not currently performing CABG surgery in New Jersey.

Table 1 (Continued)
Patient Risk-Adjusted Operative Mortality* Rates for Surgeons (2000-2001)

Hospital and Surgeon	Total Open Heart Procedures	Number of Isolated CABG Operations	Patient Operative Deaths*	Observed Patient Mortality(%)	Expected Patient Mortality(%)	Risk-Adjusted Patient Mortality (%)	95% Confidence Interval
<i>Monistown Memorial Hospital</i>							
Banker, Michael +	287	245	4	1.63	2.20	1.93	(0.52, 4.93)
Brown, III, John	795	447	4	0.89	1.90	1.22	(0.33, 3.13)
Migovern, Christopher	539	423	7	1.65	2.00	2.15	(0.86, 4.43)
Parr, Grant Van	369	173	1	0.58	1.62	0.93	(0.01, 5.16)
Rodriguez, Alejandro	499	380	6	1.58	2.27	1.81	(0.66, 3.93)
Slater, James	460	376	7	1.86	1.84	2.63	(1.05, 5.42)
All Others (1)							
Goldenberg Bruce+	1	1	0				
<i>Newark Beth Israel Medical Center</i>							
Karanam Ravindra	362	222	7	3.15	2.35	3.48	(1.39, 7.17)
Prendergast, Thomas	248	157	2	1.27	1.89	1.75	(0.20, 6.32)
Saunders, Craig R	359	216	4	1.85	2.49	1.93	(0.52, 4.95)
All Others (5)	279	129	6	4.65	2.47	4.89	(1.78, 10.64)
Burns, Paul	21	14	0				
Fuzesi, Laszlo++	45	21	0				
Gelschinsky, Issac++	32	19	3				
Goldstein, Daniel J.	143	61	1				
Sardari, Frederic F.	38	14	2				
<i>Our Lady of Lourdes Medical Center</i>							
DiPaola, Douglas J.++	330	242	8	3.31	2.49	3.44	(1.48, 6.79)
Eisen, Morris M	186	144	8	5.56	2.44	5.91	(2.54, 11.64)
Heim, John++	238	200	6	3.00	2.60	2.99	(1.09, 6.51)
Kuchler, Joseph A	396	277	10	3.61	2.47	3.80	(1.82, 6.98)
Luciano, Pasquale A	327	289	9	3.11	2.63	3.08	(1.40, 5.84)
Nayar, Armit	277	197	9	4.57	2.51	4.73	(2.16, 8.98)
Santaspiet, John S.++	259	186	3	1.61	1.88	2.23	(0.45, 6.51)
All Others (2)	11	5	0	0.00	0.79	0.00	(0.0, 100)
Horsky, Timothy++	5	4	0				
Villanueva, Dioscoro++	6	1	0				
<i>PBI Regional Medical Center</i>							
Goldenberg Bruce	342	264	11	4.17	2.74	3.95	(1.97, 7.07)
Kaushik, Raj	290	221	3	1.36	3.15	1.12	(0.22, 3.27)
All Others (3)	96	76	6	7.89	2.90	7.06	(2.58, 15.38)
Casale, Alfred++	59	46	4				
Dejene, Brook A+	14	9	0				
Schedter, Mark++	23	21	2				

SOURCE: New Jersey Department of Health and Senior Services.

*=Operative Mortality includes: (1) all deaths occurring during the hospitalization in which the operation was performed, even after 30 days; and (2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure.

LO=The risk-adjusted patient mortality is significantly lower than the state average mortality based on 95 percent confidence interval.

HI=The risk-adjusted patient mortality is significantly higher than the state average mortality based on 95 percent confidence interval.

+ =Surgeon not currently performing CABG surgery in this hospital.

++=Surgeon not currently performing CABG surgery in New Jersey.

Table 1 (Continued)
Patient Risk-Adjusted Operative Mortality* Rates for Surgeons (2000-2001)

Hospital and Surgeon	Total Open Heart Procedures	Number of Isolated CABG Operations	Patient Operative Deaths*	Observed Patient Mortality(%)	Expected Patient Mortality(%)	Risk-Adjusted Patient Mortality (%)	95% Confidence Interval
Robert Wood Johnson University Hospital							
Anderson, Mark B.	237	186	3	1.61	3.70	1.13	(0.23, 3.31)
Krause, Tyrone J.	1,438	1,075	28	2.60	2.72	2.48	(1.65, 3.59)
Scholz, Peter M.	403	184	4	2.17	2.27	2.48	(0.67, 6.36)
Scott, Gregory E.	501	409	12	2.93	2.21	3.45	(1.78, 6.03)
Vasseur, Bernard G.	184	113	5	4.42	2.34	4.92	(1.58, 11.47)
All Others (1)							
Spotnitz, Alan J.+	151	95	4				
St Barnabas Medical Center							
Sardari, Frederic F.	350	280	5	1.79	2.65	1.75	(0.56, 4.08)
Saunders, Craig R.	211	151	3	1.99	3.40	1.51	(0.30, 4.42)
All Others (5)	200	149	4	2.68	2.71	2.57	(0.69, 6.58)
Burns, Paul	28	22	2				
Fuzesi, Laszlo++	2	2	0				
Goldstein, Daniel J.	29	24	0				
Karanam, Ravindra+	24	18	0				
Prendergast, Thomas+	117	83	2				
St Francis Medical Center							
Laub, Glenn	452	343	4	1.17	2.59	1.17	(0.31, 2.99)
All Others (1)							
Costic, Joseph	97	78	3				
St Joseph's Hospital and Medical Center							
DeFilippi, Vincent J.	472	335	10	2.99	3.96	1.96	(0.94, 3.60)
Kaushik, Raj+	238	183	4	2.19	2.62	2.17	(0.58, 5.55)
Mekhjjan, Haroutune	552	407	7	1.72	2.28	1.95	(0.78, 4.03)
All Others (3)	53	40	2	5.00	3.47	3.74	(0.42, 13.52)
Levy, Dale R++	8	4	0				
Saxena, Amarkanth++	21	18	0				
Schechter, Mark++	24	18	2				

SOURCE: New Jersey Department of Health and Senior Services.

* = Operative Mortality includes: (1) all deaths occurring during the hospitalization in which the operation was performed, even after 30 days; and (2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure.

LO = The risk-adjusted patient mortality is significantly lower than the state average mortality based on 95 percent confidence interval.

HI = The risk-adjusted patient mortality is significantly higher than the state average mortality based on 95 percent confidence interval.

+ = Surgeon not currently performing CABG surgery in this hospital.

++ = Surgeon not currently performing CABG surgery in New Jersey.

Table 1 (Continued)
Patient Risk-Adjusted Operative Mortality* Rates for Surgeons (2000-2001)

Hospital and Surgeon	Total Open Heart Procedures	Number of Isolated CABG Operations	Patient Operative Deaths*	Observed Patient Mortality(%)	Expected Patient Mortality(%)	Risk-Adjusted Patient Mortality (%)	95% Confidence Interval
<i>St Michael's Medical Center</i>							
Asher, Alain++	568	421	14	3.33	3.52	2.45	(1.34, 4.11)
Codoyannis, Aristides	292	235	10	4.26	3.37	3.28	(1.57, 6.03)
Esrig, Barry C. +	355	266	5	1.88	3.06	1.59	(0.51, 3.71)
All Others (4)	203	164	4	2.44	4.69	1.35	(0.36, 3.45)
Herman, Steven D. ++	30	19	1				
Jihayel, Ayad K. +	110	97	2				
Losman, Jacques L. ++	10	8	0				
Scott, Randolph P.	53	40	1				
<i>UMDNJ University Hospital</i>							
Rajaii-Khorasani, Ahmad ++	228	177	8	4.52	2.45	4.79	(2.06, 9.43)
All Others (4)	170	113	8	7.08	2.39	7.70 HI	(3.31, 15.17)
Casale, Alfred ++	54	31	1				
Hussain S. ++	4	2	0				
Jihayel, Ayad K. +	106	76	7				
Perera, S. ++	6	4	0				
<i>Valley Hospital</i>							
Bronstein, E.	555	445	12	2.70	2.90	2.41	(1.25, 4.21)
Mindich, Bruce	826	430	14	3.26	2.27	3.72	(2.03, 6.24)
Rubinstein, M ++	366	355	8	2.25	2.40	2.43	(1.05, 4.79)
Statewide Total (2000 - 2001)	23,095	16,265	422	2.59	2.59	2.59	

SOURCE: New Jersey Department of Health and Senior Services.

*= Operative Mortality includes: (1) all deaths occurring during the hospitalization in which the operation was performed, even after 30 days; and (2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure.

LO= The risk-adjusted patient mortality is significantly lower than the state average mortality based on 95 percent confidence interval.

HI = The risk-adjusted patient mortality is significantly higher than the state average mortality based on 95 percent confidence interval.

+ = Surgeon not currently performing CABG surgery in this hospital.

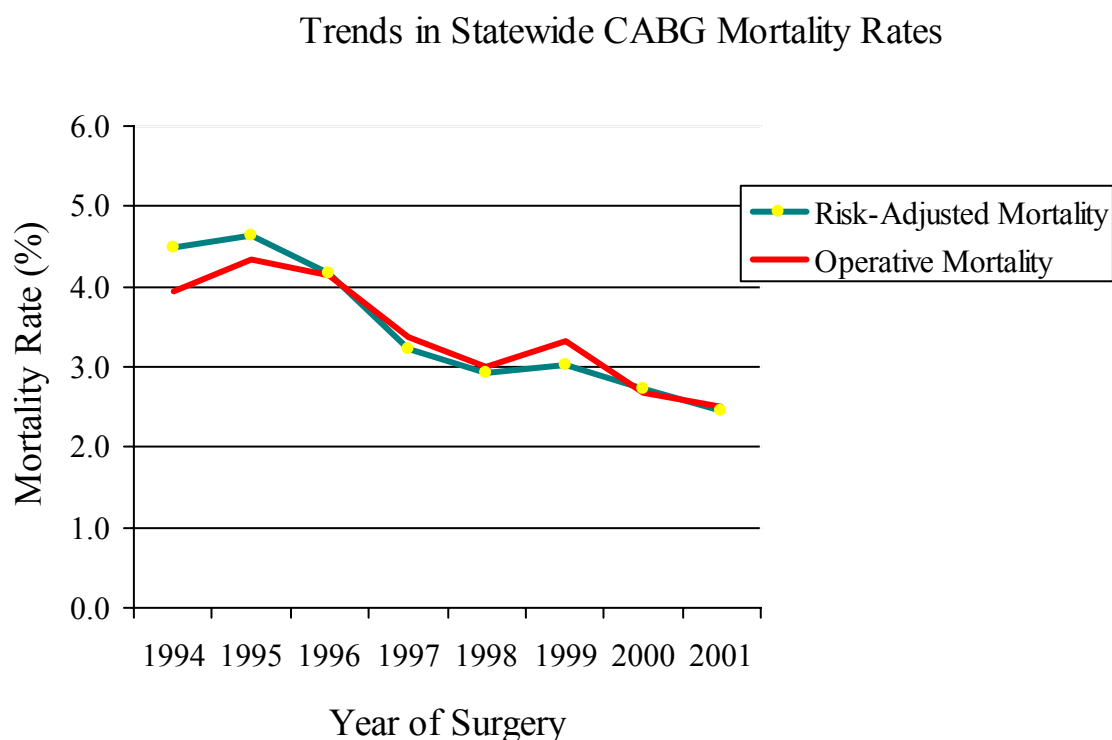
++= Surgeon not currently performing CABG surgery in New Jersey.

Statewide trends in risk-adjusted CABG mortality rates: Pooled estimates

Figure 4 presents the statewide risk-adjusted mortality rates for years 1994 to 2001 derived by pooling data from all years. When compared to 1994, the risk-adjusted patient mortality in 2001 dropped by about 45 percent.

Figure 4 also presents the trend in statewide observed operative mortality rates for years 1994-2001. The observed operative mortality rate estimates exhibit a declining trend that is similar to the risk-adjusted mortality estimates. (See also Appendix C for trends in statewide in-hospital mortality rate estimates).

Figure 4



Appendix A

Questions and answers

These are answers to some commonly asked questions that may be of interest to you as you read this report.

Q: Should I go only to the hospitals with below-average risk-adjusted mortality rates?

A: Not necessarily. There are many factors to consider in determining the best hospital for you. Among these are your own personal risk factors and the experience certain hospitals have treating patients with those risk factors. Before making up your mind, you should discuss this report with the physician, usually a cardiologist, who refers you for cardiac surgery. The cardiologist's knowledge and expertise will be a valuable guide in making your decision. You should also keep in mind that the data in this guide is from 2000 and that a hospital's performance may have changed since then.

Q: Should I avoid any surgeon whose volume is low in this report?

A: No, not necessarily. First, there are lower volume surgeons with good patient outcomes. Second, there may be a good explanation for why a surgeon had a low volume that is unrelated to his/her experience. For example, the surgeon may have recently moved from another state, where he/she performed a high volume of these procedures. It is best to discuss your concerns with your referring doctor.

Q: Should I refuse to go to a hospital for heart surgery if that hospital has a worse than average mortality record?

A: Important decisions in areas such as cardiac surgery should be made after considering all available information. The statistics in this report are a starting point for discussions with your doctor. But they do not tell the complete story. That is why it is critical to bring your concerns and questions to your doctor.

Q: Is it better to go to a hospital with a high volume of cases?

A: National studies have demonstrated that, in general, hospitals with higher volumes have better results. However, some hospitals with high volumes

have relatively high mortality rates, while others with low volumes have lower mortality rates.

Notes on data:

The data used in this study were reported by hospitals according to criteria established by the Department, with assistance from the clinical experts. The data were audited by an independent reviewer under contract to the Department.

Throughout the process of developing this report, the Department has taken steps to make sure that all hospitals were informed about data reporting and auditing requirements, as well as the statistical methods being used to risk-adjust the reported mortality data.

The Department considers it a vital function of hospitals to be able to collect and report complete, accurate medical information on patients. This function is critical not only to the success of the cardiac surgery report, but to the hospitals' own ongoing efforts to improve the quality of care for all patients. The Department and hospitals will continue working to improve data collection procedures so that this report contains the best possible information.

Copies may be obtained by writing to the New Jersey Department of Health and Senior Services, Office of Health Care Quality Assessment, P.O. Box 360, Trenton, NJ 08625, by calling (800) 418-1397 or by fax at (609) 530-7478. The report is also on our website at www.state.nj.us/health/hcsa/cabmenu.htm. The accompanying technical report, which provides more detail on the risk adjustment methodology, may also be found on the website.

Appendix B

New Jersey's Cardiovascular Health Advisory Panel (CHAP) members

Charles Dennis, MD, FACC - Chairperson of the CHAP

Chairman, Department of Cardiovascular Diseases
Deborah Heart and Lung Center

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Cooper Hospital/University Medical Center

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Chief, Division of Cardiothoracic Surgery
University of Medicine and Dentistry NJ
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Glenn Laub, MD
Chairman, Dept. of Cardiothoracic Surgery
St. Francis Medical Center

Donald Liss, MD
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Aetna

Grant V. S. Parr, MD, FACS, FACC, FCCP
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Appendix C

Statewide observed in-hospital and operative mortality rates

Year of Operation	Type of Mortality Rate	
	In-hospital Mortality Rate	Operative Mortality Rate*
1994-1995	3.75	4.14
1996-1997	3.37	3.75
1998	2.60	3.01
1999	2.89	3.31
2000	2.22	2.68
2001	2.01	2.51

* Operative mortality includes the following:

- all deaths occurring during the hospitalization in which the operation was performed, even after 30 days; and
- deaths occurring after discharge from hospital, but within 30 days of the procedure.